Available online at http://journal.um.ac.id/index.php/jph
pISSN: 2338-8110/eISSN: 2442-3890

Jurnal Pendidikan Humaniora
Volume 5, Number 3, September 2017, pp. 134–139

Using Tablet PCs in Teaching

Sarita Veeraragavoodoo
Soorooj Parsad Ramudhin Government School, Mont-Ida, Mauritius
Royal Road Providence Quarter Militaire-81106, Mauritius. E-mail: uchedee01@gmail.com

Abstract: This research purposes is prove the impact of adopting tablet PCs on enhancement of teaching in secondary schools of Mauritius. The research was conducted by mixed method which comprised of quantitative and qualitative approaches for the data gathering process in Mauritius schools. A sample of 400 participants were asked to participate to answer the questionnaire and the data captured was analyzed using software and it is restricted to reliability analysis, descriptive statistics analysis, correlation analysis, and custom tables' analysis for the quantitative data. As for the qualitative data, the reactions collected from teachers convoked for the focus group which was analyzed and reflected upon. Results from the studies and researches have shown more positive impacts than negative ones which affect teaching in secondary schools of Mauritius. The best means, therefore, is to resort to applying Tablet PCs within education to promote teaching for efficiency and effectiveness.

Key Words: tablet PCs, secondary schools, teaching

Abstrak: Tujuan penelitian ini adalah membuktikan dampak adopsi tablet pada peningkatan pengajaran di sekolah menengah Mauritius. Penelitian ini menggunakan metode campuran yang terdiri dari pendekatan kuantitatif dan kualitatif untuk proses pengumpulan data di sekolah Mauritius. Sebanyak 400 peserta diminta untuk menjawab kuesioner dan data yang diambil dianalisis dengan menggunakan perangkat lunak dan hanya terbatas pada analisis reliabilitas, analisis statistik deskriptif, analisis korelasi, dan analisis tabel khusus untuk data kuantitatif. Adapun data kualitatif, reaksi yang dikumpulkan dari guru pada pertemuan kelompok fokus yang dianalisis dan tercermin. Hasil dari penelitian ini menunjukkan bahwa dampak positif lebih banyak daripada dampak negatif yang mempengaruhi pengajaran di sekolah menengah Mauritius. Oleh karena itu, cara terbaik untuk mempromosikan pengajaran efisien dan efektif adalah dengan menggunakan aplikasi Tablet PC.

Kata kunci: komputer tablet, sekolah menengah, pengajaran

In the pursuit of living up in the age of globalisation and the technological revolution, the social context and landscape for teaching and learning is evolving rapidly. Young people are increasingly dependent on personal technologies to manage both their learning and their lives which they perceive to be seamlessly and constantly connected (Ling & Donner J., 2009) (Pachler, Bachmair, & Cook, 2010) (Traxler, 2010).

The range of possible benefits from using Tablet PCs covers almost all sphere of activity (Buckingham, 2008 and Ito et al., 2009) "in which knowledge and communication play a critical role: from improved teaching and learning processes to better student outcomes" (Scheuermann and Pedró, 2009; Horst and Wallis, 2011). The development of educational applications has expanded the range of resources available for learners and teachers right across the educational system, from pre-school to higher education. in Mauritius, the Ministry of Education and policy-makers have already triggered the change, as from 2014, in secondary schools for using Tablet PCs in teaching and learning to meet the requirement of the 21st century skills. However, the project was not implemented. The problems of this study are stated as follows 1) Can the use of Tablet PCs in teaching enhance Planning and Monitoring? 2) Does use of Tablet PCs in teaching improve Instructional Delivery? 3) Does use of Tablet PCs in teaching facilitate Classroom Management? 4) Can the application of Tablet PCs in teaching enrich the Professional Development of teachers? Then, it

Article received 27/4/2017; Approved 23/8/2017

depicts the existence of those factors which through the use of Tablet PCs influence the quality of teaching and analyses their likely impact.

METHOD

The research was conducted by mixed method which comprised of quantitative and qualitative approaches for the data gathering process in Mauritius schools. A sample of 400 participants were asked to participate to answer the questionnaire and the data captured was analyzed using the SPSS software 21.0 and it is restricted to reliability analysis, descriptive statistics analysis, correlation analysis, and custom tables' analysis for the quantitative data. As for the qualitative data, the reactions collected from teachers convoked for the focus group which was analyzed and reflected upon. The diagram below depicts the general order in which this research study is carried out under the deductive theory (Figure 1).

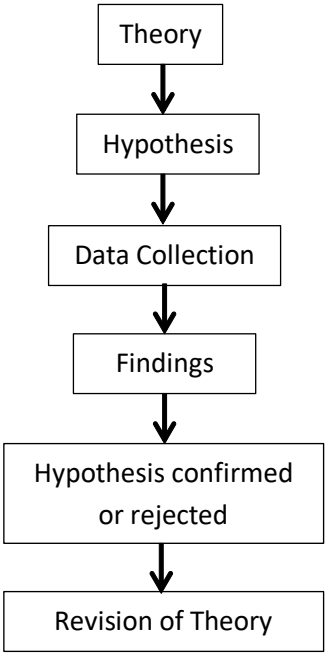

Figure 1. The Process of Deduction (Bryman, 2012)

RESULTS

The result of the data analysis "Checking the Reliability of Measures-Cronbach's Alpha" showed that the correlation between Impact of Teaching with tablet and planning and monitoring is about 0.162. Furthermore, the correlation between Impact of Teaching with tablet and Instructional Delivery is about 0.260. Moreover, the correlation between Impact of Teaching with tablet and Classroom Management is 0.401. Likewise, the correlation between Impact of Teaching with tablet and Professional Development it is about0.301. Hence, after analyzing the result of the data analysis and interview response it is concluded that the use of tablet is effective in teaching.

DISCUSSION

The stage covers the attempts to answer some questions and issues during the study.

A Global Perspective of Using Tablet PCs in Education

Ertmer (2005) advanced that integrating technology into all classrooms can facilitate teaching in new and meaningful ways. The beliefs teachers have about Tablet PCs in their minds can serve as a barrier or a booster (Ertmer 2005). The educational role of Tablet PCs' use is perceived as essential to support the vision of nurturing new competencies and qualities for 21st century learners (Bray, Adamson and Manson 2007). It targets at a qualitative change in the classroom to bring fundamental changes to the current teaching and learning processes. Correspondingly, the potential impact of digital technologies on schooling is itself multidimensional and the incorporation of competences relating to the use of digital technology into the school's curriculum clearly transforms the content of the curriculum (Cowen and Kazamias, 2009).

In today's technology-biased era, other than having subject-specific expertise and effective teaching methodologies, teacher's capacity to assist students in meeting the demands of the emerging knowledge-based society is highly demanding. Teachers are therefore required to be acquainted with new forms of pedagogical support using ICT and to develop the ability to use such technologies to enhance the quality of education (UNESCO Bangkok, 2013). The research carried out on impact of using Tablet PCs in UK's schools (Becta Research, 2007), depicted other benefits including motivation and engagement, independent learning and autonomy and key or core skills such as collaborative learning and communication, all of which can contribute to improved knowledge, understanding and skills. These factors can positively impact upon attainment. However, Crossley and Prague (2012) pointed out that 'one size does not fit all' and 'best practice' in one context may not be appropriate elsewhere. Hence,

performance in terms of teaching and learning through the implementation of emerging technologies can contextually vary worldwide. The Global Information Technology Report 2015, produced by the World Economic Forum, reiterates the long assumed perception that use of Tablet PCs has the potential to transform education. It also anticipates that Tablet PCs would offer direct access to education to all and ensure occurrence of learning.

Impact of using Tablet PCs on Education through its Constituent Parameters

Planning and Monitoring

Educational contents disseminated in class by teachers, altogether with their lesson plans, are meticulously being planned and prepared beforehand, and in line with the traditional Bloom's Taxonomy (cognitive, affective and psychomotor domains) (Scott, 2003; Churches, 2008; CSUS 2012) and the six level of thinking skills (LOTS to HOTS) of the cognitive domain (Munzenmaier, C & Rubin, 2013). When creating lesson objectives, it is imperative to consider learners' needs at all stages of planning together with the pace and timing of the lesson adjusted to learner responses through Tablet PCs' use (Beauchamp, 2012). Besides conveying information, students are encouraged to develop critical thinking and reasoning skills.

With the unprecedented technological revolutions, even Bloom's Taxonomy has not been spared. To meet the 21st century learners' requirements, it has been remodeled into the Bloom's Digital Taxonomy (Churches, 2008). As such, teachers of contemporary schools have no alternative than to adapt and customize their pedagogical contents accordingly (Edtechtimes, 2014). This shift only becomes successful if there is an increased time allocation for teachers to investigate and create learning activities where they can see greater student ownership of interoperable Tablet PCs and a shared expectation of the value of such technologies to learning (Stewart, 2013, Middleton and Nortcliffe, 2015). Both Tella (2007) and Harven (2014) reported that teachers' readiness and confidence of using Tablet PCs during lessons is highly affected by the technical support provided by the schools and level of teachers' expertise of using these devices.

The Becta Research (2007) recognised that, with the aid of Tablet PCs, teachers are able to support a range of planning and administrative activities at both class level and school level. It affirmed that those teachers, having acquired and developed ICT skills and confidence in using such technologies, found their tasks simplified and therefore experienced a reduction in some aspects of their workload. Pricewaterhouse-Coopers (2004) reported about benefits perceived in managing, storing, and maintaining information and other work such as preparing reports, with the time saved being reinvested in planning and lesson preparation by teachers. It was also discovered that with use of Tablet PCs, teachers selected tasks carefully both for appropriate content and to encourage pupil-pupil and pupil-teacher interactions (Becta Research, 2007). With Tablet PCs having online access to resources, discussion forums and educational platforms, teachers have greater control over the planning, preparation and content of their lessons (Granville, 2005).

Instructional Delivery

The Arlington Public Schools defines instructional delivery as a process in which teachers apply panoply of instructional strategies to communicate and interact with students around academic content, and to support student engagement (Apsva nd). Majumdar (2002) emphasised that learners always look for flexibility in time, space, place, content selection, and delivery of instructions. Thus, learners can see a diversity of viewpoints on a single issue or subject which in textbooks may be restricted (Almadhour, 2010).

Use of Tablet PCs in schools changes the orientation of the classroom; prepares students for adapting in new age; increases flexibility of delivery; increases access; and satisfies public demands for efficiency (Miller et al., 2000 , Louw et al., 2008). Hence, it is an indispensable tool to engage learners to construct purposeful knowledge structures in an interactive learning environment (Enriquez, 2010 Middleton and Nortcliffe, 2015). While some authors maintained that Tablet PCs have the power to revolutionise the ways students learn and teachers instruct (Kozma, 1991), others postulated that it can transform the teaching and learning processes (Breuleux et al., 1998, Schank, 2005, Harrison, 2005). Harven (2014) wrote that Tablet PCs enabled teachers to accommodate content for mixed-ability students and ensured their engagement for self-learning to achieve the desired learning outcomes. In fact, it has been exposed that the use of Tablet PCs with necessary software in education can help improve memory retention, increase motivation and generally deepens understanding (Becta Research, 2007, Heemskerk et al., 2011, Van Assche et al., 2015, T4S, 2016).

Classroom Management

Sangrà and González-Sanmamed (2010) iterated that teachers perceived using Tablet PCs at school as an aid to improve students' attention and perception skills. Considering attention as a basic prerequisite for learning, tablet becomes the facilitator to learning as it helps create better learning conditions by arousing and stimulating students' attention in class. Savage (1999) highlighted that the more children are engaged and interested in a lesson, the less likely they are to misbehave.

According to Enriquez (2010) and Stewart (2013), tablet has transformed the dynamics of classroom interactions (classroom setup, pedagogies and interactions between students and teachers) for the betterment (Ali et al. 2013). The use of Tablet PCs facilitated two-way communication between each student and the teacher during class, at the same time providing individual comments on students' work. Mock (2010) advocated that this approach enthusiastically encouraged students to take part in exercises and to receive immediate feedback. Harrison et al.'s study (2002) established that Tablet PCs promoted more student engagement with the subject, entitling them opportunities for analysis and reflection and enhancing empowerment of higher-order skills associated with communication.

Professional Development

To keep abreast of all advances in subject matter knowledge or pedagogy, teachers are expected to upgrade their skills. Garrison & Vaughan (2008) stressed that usage of Tablet PCs can boost up young peoples' social skills because it allows for information sharing. UNESCO (2011) appointed ICT-literate teachers to design ICT-based learning resources and environments; to use ICT to support the development of knowledge creation and the critical thinking skills of students; support students' continuous, reflective learning; and create knowledge communities for students and colleagues. Tablet is therefore used to ensure the holistic development of students to match 21st century learners' skills requirements (Ali et al., 2013).

CONCLUSION

Conclusively, its an undeniable fact that education is changing rapidly. The introduction of tablet PCs in the classroom is opening up new possibilities, and facilitating the adoption of new techniques and methodologies that are transforming the way teaching is undertaken and learning taking place in schools. Such evolutions are providing new opportunities to radically change the way teachers and students acquire knowledge. It can be said that Tablet PCs have invaded the sphere of the education sector. Results from the studies and researches have shown more positive impacts than negative ones which affect teaching. The educational role of this technology is perceived as vital to support the vision of fostering new competencies and qualities of learners for the 21st century (Bray, Adamson and Manson, 2007). It targets at a qualitative change in the classroom to bring fundamental changes to the current teaching and learning processes in Mauritius school. Correspondingly, the potential impact of Tablet PCs on schooling is itself multi-dimensional and the incorporation of competences relating to the use of digital technology into the school's curriculum clearly transforms the content of the curriculum (Cowen and Kazamias, 2009).

Teaching becomes meaningful only if the learner is able to use the knowledge gained to create new knowledge to suit specific circumstances. The 21st century, marked by globalisation and technological revolutions, contradicts significance of traditional methods for teaching. The best means, therefore, is to resort to applying Tablet PCs within education to promote teaching for efficiency and effectiveness.

REFERENCES

Ali, G., Haolader, F. A., & Muhammad, K. (2013). The Role of ICT to Make Teaching-Learning Effective in Higher Institutions of Learning in Uganda. *International Journal of Innovative Research in Science, Engineering and Technology, 2*(8), 4061–4073. Retrieved from https://www.ijirset.com/upload/august/67_The%20Role.pdf.

Almadhour, B. (2010). *The integration of information and communication technology into secondary technology teachers' pedagogy in New Zealand* (Master's thesis, Auckland University of Technology, 2010). Auckland. Retrieved from http://aut.researchgateway.ac.nz/handle/10292/867.

Assche, F. V., Anido, L., Griffiths, D., Lewin, C., & McNicol, S. (Eds.). (2016). *Re-Engineering The Uptake of ICT In Schools*. S.l.: Springer. doi:10.1007/978-3-319-19366-3.

Aucoin, D., Ball, R., Foley, E., & Midwinter, S. (2011, August 6). Using Tablets in the Classroom: Negative Impacts and Issues. Retrieved from http://usingtabletsintheclassroom.weebly.com/index.html.

Beauchamp, G. (2015). *ICT IN THE PRIMARY SCHOOL: from pedagogy to practice*. United Kingdom: Taylor &Francis.

Bray, M., Adamson, B., & Mason, M. (2016). *COMPARATIVE EDUCATION RESEARCH: approaches and methods* (2nd ed., Vol. 19). Germany: SPRINGER. doi: 10.1007/978-3-319-05594-7.

Breuleux, A., Laferriere, T., & Bracewell, R. (1998). Networked Learning Communities in Teacher Education. In *Technology and Teacher Education Annual* (pp. 1-9). Canada. Retrieved from https://eric.ed.gov/?id=ED421163.

Bryman, A. (2016). *Social research methods*. Oxford: Oxford University Press.

Buckingham, D. (2008). *Youth, identity, and digital media*. Cambridge, MA: MIT Press.

Burden, K., Hopkins, P., Male, T., Martin, S., & Trala, C. (2012). *IPad Scotland Evaluation* (pp. 1–116, Rep.). East Yorkshire, United Kingdom: University of Hull.

Condie, R., & Munro, R. K. (2007). *The impact of ICT in schools: a landscape review*. Coventry: Becta.

Crossley, M., & Sprague, T. (2012). Learning from Small States for Post-2015 Educational and International Development. *Current Issues in Comparative Education, 15*(1), 26–40. Retrieved from www.janhylen.se/wp-content/uploads/2013/01/Skottland.pdf.

Deaney, R., & Hennessy, S. (2007). Sustainability, evolution and dissemination of information and communication technology-supported classroom practice. *Research Papers in Education, 22*(1), 65–94. doi:10.1080/02671520601152102.

Dutta, S., Geiger, T., & Lanvin, B. (2015). *The Global Information Technology Report 2015* (Rep.). World Economic Forum.

Elearn Magazine: e-Learning Tools for Computer Science Educators and Students. (n.d.). (2017). Retrieved from http://elearnmag.acm.org/archive.cfm?aid=1833510.

Enriquez, A. G. (2010). Enhancing Student Performance Using Tablet Computers. *College Teaching, 58*(3), 77–84. doi:10.1080/87567550903263859.

Garrison, D. R., & Vaughan, N. D. (2008). *Blended learning in higher education: framework, principles, and guidelines*. San Francisco: Jossey-Bass.

Harven, M. (2014, May 12). *Ed Schools Wary of Teaching New Tech Tools to Teachers*. Retrieved from http://edtechtimes.com/2014/05/08/education-schools-preparing-teachers-use-technology/.

Heemskerk, I., Volman, M., Admiraal, W., & Dam, G. T. (2012). Inclusiveness of ICT in secondary education: students' appreciation of ICT tools. *International Journal of Inclusive Education, 16*(2), 155–170. doi:10.1080/13603111003674560.

ICT in Education: Projects: Training of Teachers (Rep.). (2013). UNESCO Bangkok. Retrieved from www.unescobkk.org/education/ict/ict-in-education-projects/training-of-teachers/?utm_medium=twitter%2Fculture%2Fworld-her.

Interactive Learning Network (ILN) in Engineering, Mathematics, and Physical Sciences. (n.d.). Retrieved from http://accounts.smccd.edu/enriquez/HP-technology-for-teaching.htm.

Laird, A., Granville, S., & K. (2004). *Evaluation of the Masterclass Initiative* (Rep.). George Street Re-search. Retrieved from http://www.gov.scot/Publications/2004/09/19963/43200.

Leask, M. & Pachler, N. (2014). *Learning to teach using ICT in the secondary school: a companion to school experience*. London: Routledge, Taylor, & Francis Group.

Leask, M., & Pachler, N. (2014). *Learning to Teach Using ICT in the Secondary School*. New York, United States: Routledge.

Ling, R., & Donner, J. (2009). *Mobile Communication*. Polity.

Miller, J. W., Martineau, L. P., & Clark, R. C. (1999). Technology Infusion and Higher Education: Changing Teaching and Learning. *Innovative Higher Education, 24*(3), 227–241. doi:10.1023/b:ihie.0000047412.64840.1c.

Munzenmaier, C., & Rubin, N. (2013). *BLOOM'S TAXONOMY: What's Old Is New Again*. Santa Rosa CA, United States: The eLearning Guild.

Nortcliffe, A., & Middleton, A. (2013). The Innovative Use of Personal Smart Devices by Students to Support their Learning. *Cutting-edge Technologies in Higher Education Increasing Student Engagement and Retention Using Mobile Applications: Smartphones, Skype and Texting Technologies,* 175–208. doi:10.1108/s2044-9968(2013)000006d009.

Scheuermann, F., & Pedró, F. (2010). *Assessing the Effects of ICT in Education: Indicators, Criteria and Benchmarks for International Comparisons* (Tech.). Organization For Economic Co-operation and Development. Retrieved from http://www.oecd.org/edu/ceri/assessingtheeffectsofictineducationindicatorscriteriaandbenchmarksforinternationalcomparisons.htm.

Scott, T. (2003). Bloom's taxonomy applied to testing in computer science classes. *Journal of Computing Sciences in Colleges, 191*, 267–274. Retrieved from http://dl.acm.org/citation.cfm?id=948775.

Stewart, A. (2013). *Tablet PC use in teaching and learning: a case study* (Master's thesis, Edith Cowan Univer-

sity, 2013). Perth. Retrieved from http://ro.ecu.edu.au/cgi/viewcontent.cgi?article=1698&context=theses.

Technology in education: a summary of our research. Family Kids & Youth (Tech.). (2016). Retrieved from http://techknowledge.org.uk/research/research-reports/mobile-technology-in-education-the-research-story-so-far/.

Tella, A. (2007). The Impact of Motivation on Student's Academic Achievement and Learning Outcomes in Mathematics among Secondary School Students in Nigeria. *EURASIA Journal of Mathematics, Science and Technology Education, 3*(2), 149–156. Retrieved from http://www.ejmste.com/The-Impact-of-Motivation-on-nStudent-s-Academic-Achievement-nand-Learning-Outcomes-in-nMathematics-among-Secondary-nSchool-Students-in-Nigeria,75390,0,2.html.

Traxler, J. (2010). Will Student Devices Deliver Innovation, Inclusion, and Transformation? *Journal of the Research Center for Educational Technology (RCET), 6*(1), 3–15. Retrieved from https://www.researchgate.net/publication/50590465_Will_Student_Devices_Deliver_Innovation_Inclusion_and_Transformation.

UNESCO ICT Competency Framework for Teachers (Rep.). (2011). UNESCO. Retrieved from http://www.unesco.org/new/en/unesco/themes/icts/teacher-education/unesco-ict-competency-framework-for-teachers/